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Substitute for form 1449A/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 1 of 8

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Application Number							
Filing Date							
First Named Inventor	Brad A. Armstrong	- A					
Group Art Unit		<del>-</del> 46-					
Examiner Name		7					
Attorney Docket Number	19.						
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22		520059	7	Eastman	1993	
1		520742	6	Inoue	1993	
		528708	9	Parsons	1994	
		531177	Ø	Teruo	1994	
		531520	4	Park	1994	
		536410		Esnouf	1994	)
		336549	4	Lynch	1994	
		537691	3	Pine	1994	
		539623	5	Maeshima	1995	7
		544023	7	Brown	1995	71
<u> </u>		545747	8	Frank	1995	
		564056	6	Victor	1997 /	
		567095	5	Thorne	1997	
		567323	7	Blank	1997	
		567532		Barker	1997	
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1		577840		Capps	1998	
X.		579010		Nassima \	1998	$\overline{\mathcal{I}}$
u		584730	5	Yoshikawa	1998	

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9_			DE3031484		Gurndig	1982	
			DE3543890		Thomson-Brant	1987	
			GB2113920		Alps Electric	1983	
7			GP 2058462		Shin-Etsu Polym	er\1981	
1		$\sqcup \downarrow$	wo9957630		Schneider	1999	1
4		-		apah	Mitsumi Electr	c 1 <b>9</b> 93	
7			JP7302159		Sega Enterprise	1995	1
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(<_		5565891		Armstrong	1996	
1		5589828		Armstrong	1996	
		5999084		Armstrong	1999	
		6102802		Armstrong	2000	
		6135886		Armstrong	2000	
		6198473		Armstrong	2001	
		6208271		Armstrong	2001	
		6222525		Armstrong	2001	
		3611068		Pujita	1971	
		3806471		Mitgbell	1974	
		3952173		Tsuji	1976	
		3988556		Hyodo	1976	
		4224602		Anderson	1980	
		4313113		Thornburg	1982	
		4315238		Eventoff	1982	
		4552360		Bromley	1985	
		4673919		Kataoka	1987	
		4786895		Castaneda	1988	
<u> </u>		4866542		Shimada	1989	
42	-	15164697		Kramer	1992	

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Ц				jp7281824		Namco	1995		
				ep0470615		Nintendo	1992	<u> </u>	1
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		5287089	1	Parsons	1994			1
		5132658		Semsym INC.	1992			1
7		5196782	1	Luntron	1991			7
		4975676		Spectra	1990			7
		4694231		Alvite	1987			7
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			Jp09213168		Teikoku	1997		+-
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			GB2308448		Samsung	1997		1
			RU2010369		'Smyslov	1994		
1			GB2267392		Collins	1993		1
			jp05151828		Yokohama	1993		1
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100		5854624	Grant	1998				
1		5883619	Но	1999				
1		5889236	Gillespie	1999				
		5895471	King *	1999				
1		5948066	Whalen	1999				
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9		GB2233499		Mitsubishi	1991	Figures Appear	$\top$
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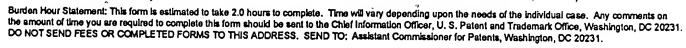
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ज	-	3771037		Bailey	1973			
1		4733214		Andersen	1988			
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V		IBM TECHNICAL DISCLOSURE BULLETIN pp230-235 Feb. 1990 Mouse Ball-Actuating Device With Force And Tactile Feedback	,	
1	-	RESEARCH DISCLOSURE November 1987 28373 Joystick with Tactile Feedback		
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